

Presentation Title: *Revitalising Existing Public Infrastructure to Benefit the Environment, Community and Enhance the Region's Water Balance by Arup*

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The Using the Main Outfall Sewer (MOS) to improve Liveability in the West project has been a visioning process for an asset that could (once again) be of regional significance by performing a number of symbiotic functions that benefit the environment, community and enhance the region's water balance. As part of this body of work Arup, the Project Working Group and stakeholders have:

- Developed a spectrum of 'green infrastructure' options
- Understand likely engineering works and the magnitude of capital and operational costs;
- Developed and undertaken a cost benefit analysis on these spectrum of options;
- Demonstrated that all 'green infrastructure' options clearly show that the benefits outweigh the costs and therefore benefit cost ratios in excess of 1;
- Captured a vision to take forward and to continue to engage with the relevant stakeholders; and
- Produced a clear list of next steps about what needs to be done to move the project forward.

The MOS reserve was originally commissioned in 1897. In 1993, following the construction and commissioning of the Western Trunk Sewer, the MOS was decommissioned. Since then, the MOS reserve has been used as a bike path known as the Federation Trail. The MOS is listed in the Victorian Heritage Registry and protected under the Heritage Act 1995.

A spectrum of options was developed to allow for a comparison between high level options primarily related to the end use of water captured and/or conveyed within the MOS structure and reserve. These options were also discussed in detail with various stakeholders whose future and current actions may affect the viability of these options and the results of these discussions captured in a subsequent risk assessment and associated implementation plan which seeks to understand and mitigate these risk in future stages of project development. To allow for a fair comparison between options, each option was required to consider and include the entire alignment rather than individual pieces of the MO. It should be noted that further work will be required to optimise options and further refine key feasibility assumptions.

The project vision involves the transformation of the heritage listed MOS and associated Federation Trail into an iconic public space and water harvesting, treatment and storage facility. Drawing on the various ideas put forward by the stakeholder group at the visioning workshops and via the collaborative mapping platform and the options with regard to water, Arup developed a vision for the alignment which was tested throughout the project to test the functionality of the site for various demographics.

Conclusion: From a quantitative perspective the results reveal that using the MOS as a functioning green corridor both with and without water has the potential to be a significant asset to the region with the ability to generate broad benefits to the area. The comparison of qualitative and quantitative scores demonstrates that the pursuit of a water related option is worth progressing to the next level of conceptual design in order to quantify the volumes of water that could be taken by users, how this affects the infrastructure requirements and related costs of the refined options. Options which propose to provide recycled water for commercial, industrial and residential purposes score more highly than those providing the full volume to irrigators. It is noted that there are a number of assumptions that need further testing and potential project risks to progress these water options and these are detailed in the Implementation Plan.